

**INTERGOVERNMENTAL AGREEMENT REGARDING THE CITY OF GAINESVILLE
WATER MAIN RELOCATIONS OF THE WHITE SULPHUR PHASE II PROJECT**

THIS INTERGOVERNMENTAL AGREEMENT (this “**Agreement**”) is made and entered into as of the ____ day of _____, 2025 (“**Effective Date**”), by and between **HALL COUNTY**, a political subdivision of the State of Georgia (“**County**”), and the **CITY OF GAINESVILLE**, a municipal corporation of the State of Georgia (“**City**”). County and City, each a “**Party**” and collectively, the “**Parties**”.

WITNESSETH:

WHEREAS, Article IX, Section III, Paragraph 1 of the Georgia Constitution provides that cities and counties may enter into intergovernmental agreements for the provision of authorized services and for the joint or separate use of facilities or equipment, and O.C.G.A. § 32-4-62 further provides that cities and counties are authorized to enter into intergovernmental agreements related to work on public roads; and

WHEREAS, County and City desire to enter into this Agreement allocating certain responsibilities regarding utility relocation and contract responsibilities in furtherance of the Hall County project White Sulphur Road Phase II Realignment from Cagle Road to State Route (SR) 365/Cornelia Highway (the “**Project**”); and

WHEREAS, City water main facilities lie within portions of the Project; and

WHEREAS, all required rights of way necessary for construction and relocations of utilities have been acquired by the County or will be acquired prior to Project award; and

WHEREAS, County and City desire to enter into this Agreement to further provide for the relocation and construction of the City water main and the allocation of their respective rights, responsibilities, and obligations for funding and other assistance provided for the City; and

WHEREAS, County agrees to be responsible for paying the total of the preliminary engineering, right-of-way acquisition, and construction costs of the Project (the “**Project Engineering and ROW Costs**”). Prior to the Parties’ determination to proceed with the City of Gainesville Water Main Relocations, the County incurred Project Engineering and ROW Costs as follows:

- (a) Preliminary engineering costs for the Project totaling \$566,405.00.
- (b) Right of way costs for the Project totaling \$781,600.00.

NOW, THEREFORE, for and in consideration of the mutual promises, the public purposes, and the acknowledgements and agreements contained herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the Parties mutually agree as follows:

1. **Recitals a Part of Agreement.** The Parties agree that the foregoing recitals and promises constitute a substantive part of this Agreement.
2. **Construction of the Hall County Water Main Relocations.** This Agreement addresses only the City of Gainesville water main relocations of the Project as shown in Exhibit A, attached hereto and incorporated herein, per the City of Gainesville published standard specifications, Section 33 10 00 Water Mains and Accessories as shown in Exhibit B, attached hereto and incorporated herein, and is not meant to affect in any way other portions of the Project.
3. **Responsibility for Elective Design Changes.** Notwithstanding anything to the contrary in this Agreement, each Party shall be entirely responsible for all costs (including, without limitation, design and engineering costs, construction costs, right-of-way costs, and environmental mitigation costs) caused by Elective Design Changes requested by that Party, and such costs shall not count toward that Party's Construction Funding Commitment (as hereinafter defined). "**Elective Design Changes**" are defined as any aesthetic or technologic upgrade to the Project's design or engineering, which upgrade is not necessitated from an engineering or cost-savings standpoint (e.g., design changes for aesthetic improvement purposes such as landscaping or lighting). Elective Design Changes specifically include the costs of any design or engineering changes necessitated by or resulting from an upgrade, including costs of design or engineering changes that flow into a non-requesting Party's jurisdiction.
4. **Right of Way Acquisition.** The Parties agree that all necessary rights of way have been acquired or will be acquired for the Project and that all costs associated with said right of way acquisition either have been or will be paid by the County.
5. **Funding for Construction Costs.** The Parties agree that the County will be responsible for the costs directly and necessarily associated with the construction of the Project, which costs include environmental mitigation costs (collectively, "Construction Costs"). The amount of Construction Costs that County agrees to pay ("Construction Funding Commitment") is as follows:
 - a. County's Estimated Construction Funding Commitment is \$6,970,000.00; provided, however, that County's Construction Funding Commitment is contingent upon County's receipt of the construction bid.

As provided in Section 5 of this Agreement, Elective Design Changes *shall not count* toward the County's Construction Funding Commitment.

6. **Responsibility for Procuring and Contracting.** The County will be responsible for procuring and engaging by contract the construction services needed for the Project. Subject to the rights of the City provided further in this Agreement, the County will be solely responsible for managing the performance of the selected contractors. Any contractor damage claims or change orders, other than those caused by the gross

negligence or willful wrongdoing of the County, will be considered Construction Costs. The County will be solely responsible for damage claims or change orders caused by its own gross negligence or willful wrongdoing. On technical matters related to design and construction, the County will be the liaison with the selected contractor.

7. **Rights of City.** During the procurement and contract negotiation phase, the County will provide bids for the City's concurrent review prior to award. In general, City may, upon reasonable notice, review and provide input on the applicable procurement and contract materials. During the construction phase, City will be solely responsible for necessary product submittal review and approval, and inspection and testing of the work for the City of Gainesville water main relocation work and consult with the County and the selected contractors as needed. Project coordination between the County and the City will occur throughout the duration of the Project such that the County will hold progress meetings with the City on at least a monthly basis for the duration of the Project.
8. **Cooperation.** Each Party will cooperate and work in good faith with the other to advance the Project. Cooperation will include the potential joint submittal of applications for permits, grants or funding requests and/or regulatory approvals.
9. **Record Disclosure.** Each Party agrees to provide the other, upon reasonable request, copies of all of its records and information, not privileged or restricted by law, with respect to the Project, when reasonably necessary for the performance of any obligations or exercise of any rights under this Agreement.
10. **Commencement and Term.** This Agreement shall commence as of the Effective Date and continue until the earlier of: (a) the completion of the Project and all obligations set forth in this Agreement; or (b) 50 years from the Effective Date.
11. **Remedy.** A Party's sole remedy in the event of non-performance by the other Party shall be an action to compel specific performance. The prevailing Party in any such action shall be entitled to reasonable attorney's fees and costs.
12. **Governing Law and Venue.** This Agreement shall be governed by the laws of the State of Georgia, and proper venue for any actions arising out of this Agreement shall be in the Superior Court of Hall County.
13. **Captions and Severability.** The caption or headnote on sections of this Agreement are intended for convenience and reference purposes only and in no way define, limit, or describe the scope or intent thereof, or of this Agreement, nor in any way affect this Agreement. Should any section(s), or any part hereof, later be deemed illegal, invalid, or unenforceable by a court of competent jurisdiction, the offending portion of this Agreement should be severed, and the remainder of this Agreement shall remain in full force and effect to the extent possible, as the Parties declare they would have agreed to the remaining parts.

of this Agreement if they had known that the severed provisions or portions thereof would be determined illegal, invalid, or unenforceable.

14. **Waiver of Agreement.** No failure by either Party to enforce any right or power granted under this Agreement, or to insist upon strict compliance, and no custom or practice of either Party at variance with the terms and conditions of this Agreement shall constitute a general waiver of any future breach or default or affect a Party's right to demand exact and strict compliance with the terms and conditions of this Agreement. Further, no express waiver shall affect any term or condition other than the one specified in such waiver, and that one only for the time and manner specifically stated.
15. **No Third-Party Rights.** This Agreement is entered into for the benefit of the Parties only and shall confer no benefits, direct or implied, to any third persons or authorize anyone not a Party to this Agreement to maintain an action pursuant to the terms or provisions of this Agreement.
16. **Agreement Construction and Interpretation.** Each Party represents that it has reviewed and become familiar with this Agreement and has notified the other Party of any discrepancies, conflicts, or errors herein. The Parties agree that if any ambiguity or question of intent or interpretation arises, this Agreement is to be construed as if the Parties had drafted it jointly, as opposed to being construed against a Party because it was responsible for drafting one or more provisions of this Agreement.
17. **Counterparts.** This Agreement may be executed in multiple counterparts, and each counterpart shall be considered an original.
18. **Authority to Enter Agreement.** Each of the individuals executing this Agreement on behalf of his or her respective Party agrees and represents to the other Party that he or she is authorized to do so and further agrees and represents that this Agreement has been duly passed upon by the required governmental agency or board in accordance with all applicable laws and spread upon the minutes thereof. The City and County each represent, warrant, and covenant to the other as follows: Each has the full legal right, power, and authority to enter into this Agreement and to perform its duties and obligations hereunder. This Agreement has been duly authorized, executed, and delivered and constitutes a legal, valid, and binding obligation of the representing Party, enforceable against it in accordance with its terms.
19. **Time of the Essence.** Time is of the essence of this Agreement.
20. **Entire Agreement.** This Agreement constitutes the entire agreement between the Parties and supersedes and replaces any and all other agreements, either oral or in writing, between the Parties with respect to the subject matter of this Agreement, except as provided in Sections 1, 2, and 16 hereof. No other agreement, statement, or promise relating to the

subject matter of this Agreement not contained in this Agreement shall be valid or binding. This Agreement may be modified or amended only by a written document signed by representatives of both Parties with appropriate authorization.

21. **No Joint Venture.** The Parties agree that nothing contained within this Agreement can be or should be construed as creating a joint venture or partnership between the Parties.
22. **Assignment.** The Parties agree that neither Party may assign or transfer any interest in, or delegate any duties of, this Agreement without the prior express written consent of the other Party.
23. **Notice.** All notices, requests, demands, writings, or other communications required or permitted to be given hereunder shall be in writing and shall be deemed received, and shall be effective, when: (1) personally delivered, or (2) upon actual delivery when sent via national overnight commercial carrier to the Party at the address given below, or at a substitute address previously furnished by written notice in accordance herewith.

City of Gainesville

757 Queen City Pkwy
Gainesville, GA 30501

Hall County

Post Office Drawer 1435
Gainesville, GA 30503

With a Copy to:

Alejandro Chacon-Meneses
AChacon@gainesvillega.gov

With a copy to:

Jordan Wallace
JWallace@hallcounty.org

[SIGNATURES ON FOLLOWING PAGE]

IN WITNESS WHEREOF, the Parties hereto have set their seals by and through their respective authorized officials.

HALL COUNTY, GEORGIA

By:

David Gibbs

Chairman, Board of Commissioners

Attest:

Jennifer Rivera

County Clerk

(Affix County Seal)

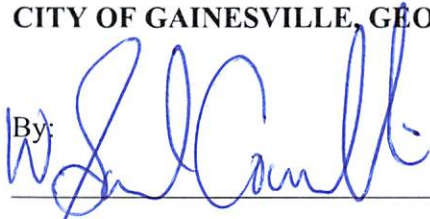
APPROVED AS TO FORM



Justin R. Lawhon,
Senior Assistant County Attorney

CITY OF GAINESVILLE, GEORGIA

By:



W. Samuel Couvillon

Mayor, City of Gainesville

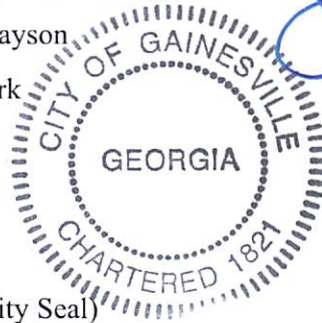
Attest:



Alisa Grayson

City Clerk

(Affix City Seal)



APPROVED AS TO FORM



Abbott S. Hayes, Jr., City Attorney



APPROVED AS TO FORM

Justin R. Lawton,
Senior Assistant County Attorney

Exhibit A – Utility Relocation Plans
(Stamped and Sealed September 30, 2025)

11/25/2020 10:06:00 AM

EXISTING ITEMS

SOILS TYPE
WATER MAIN
GAS LINE
STORM DRAIN
SANITARY SEWER
UNDERGROUND TELEPHONE

UTILITY POLE WITH GUY WIRE
FIRE HYDRANT
MANHOLE
WATER VALVE
GAS VALVE
UNDERGROUND POWERLINE
WATER METER
MAIL BOX
TELEPHONE PEDESTAL
CTV PEDESTAL
VALVE MARKER

GUARD RAIL
TELEPHONE MANHOLE
FENCE
TRAFFIC CONTROL SIGNAL
IRON PIN FOUND
RIGHT OF WAY MONUMENT
RIGHT OF WAY LINE
CATCH BASIN
DROP INLET
OVERHEAD POWER LINE
DITCH WITH DIRECTION OF FLOW
STEEP EMBANKMENT
EXISTING EDGE OF PAVEMENT

GENERAL NOTES

- OWNER CITY OF GAINESVILLE, DEPARTMENT OF WATER RESOURCES
757 QUEEN CITY PARKWAY
GAINESVILLE, GEORGIA 30501
770-538-2406
- EMERGENCY NAME: ALEJANDRO CHACON
24-HOUR ENGINEERING DESIGN MANAGER
CONTACT OFFICE # (770)535-3069 MOBILE # (770)654-6036
- TOTAL DISTURBED AREA - UTILITY INSTALLATION: 0.25 ACRES NON-CONTIGUOUS
- THE PARCELS FOR THE PROJECT ARE: 15020A000008, 15020A000008B, 15020A000008A, AND 15020A000005
- DESCRIPTION: WORK PERFORMED BY THIS CONTRACT WILL INCLUDE RELOCATING 1,100 LINEAR FEET (LF) OF 16" DUCTILE IRON PIPE WATER MAIN. THIS CONSTRUCTION MAY REQUIRE UP TO 2,400 CY OF EARTHWORK. TRENCH WORK WILL BE REQUIRED TO INSTALL THE NEW WATER MAINS. THE LIMITS OF LAND DISTURBANCE WILL BE CONTAINED WITHIN THE RIGHT OF WAY AND EASEMENTS.
- EXISTING SITE CONDITIONS AND ADJACENT AREAS: THE MAJORITY OF THE EXISTING SITE IS IN THE ROADWAY RIGHT-OF-WAYS. SLOPES VARY FROM GENTLE TO STEEP AND THE VEGETATION IS MOSTLY GRASS AND DIRT SCATTERED WITH GRAVEL.
- WORK ZONES WILL BE SET UP ACCORDING TO THE LATEST M.U.T.C.D. MANUAL.

PROPOSED ITEMS

WATER LINE
WATER SERVICE LINE
FIRE HYDRANT
VALVE
BEND
STANDARD TERMINATION
SOLID SLEEVE
REDUCER
WATER METER
WATER LINE EASEMENT
LIMITS OF DISTURBANCE
SILT FENCE
BORE PIT / RECEIVING PIT
FREE BORE

ABBREVIATIONS

CONC. CONCRETE
F.H. FIRE HYDRANT
ASPH. ASPHALT
I.P.F. IRON PIN FOUND
I.P.S. IRON PIN SET
G.V. GATE VALVE
B.V. BUTTERFLY VALVE
T.S.&V. TAPPING SLEEVE AND VALVE
C.L.F. CHAIN LINK FENCE
B.W.F. BARBED WIRE FENCE
C.I.P. CAST IRON PIPE
D.I.P. DUCTILE IRON PIPE
C.T. COPPER TUBING
G.S.P. GALVANIZED STEEL PIPE
C.M.P. CORRUGATED METAL PIPE
PERM. PERMANENT
CONSTR. CONSTRUCTION
E.S.M.T. EASEMENT
P.V.C. POLYVINYL CHLORIDE PIPE
DW. DRIVEWAY
ALUM. ALUMINUM
R.C.P. REINFORCED CONCRETE PIPE
M.J. MECHANICAL JOINT
T.C.S. TRAFFIC CONTROL SIGNAL
R/W. RIGHT OF WAY

GAINESVILLE WATER RESOURCES NOTES

- THE GAINESVILLE DEPARTMENT OF WATER RESOURCES SHALL BE NOTIFIED 24 HOURS PRIOR TO ANY WATER MAIN CONSTRUCTION OR REPAIRS. ONLY CONTRACTORS APPROVED BY GAINESVILLE DEPARTMENT OF WATER RESOURCES WILL BE ALLOWED TO PERFORM CONSTRUCTION OR REPAIRS CONNECTED TO SAID WATER OR SANITARY SEWER MAINS. CALL ENGINEERING INSPECTOR'S OFFICE AT (770) 538-2406 PRIOR TO BEGINNING CONSTRUCTION OR TO BECOME AN APPROVED CONTRACTOR.
- ALL WATER MAIN AND SANITARY SEWER MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE CITY OF GAINESVILLE "STANDARD SPECIFICATIONS FOR CONSTRUCTION OF WATER MAINS AND SANITARY SEWERS", (LATEST EDITION).
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING A MARKED-UP SET OF CONTRACT DRAWINGS SHOWING "AS-BUILT" CONDITIONS. THESE "RECORD DRAWINGS" SHALL BE MADE AVAILABLE TO THE ENGINEER AND/OR THE CITY INSPECTOR UPON REQUEST. THE MARK-UPS SHALL BE AT THE SITE AT ALL TIMES AND SHALL BE UTILIZED TO DEVELOP FINAL RECORD DRAWINGS. FINAL ACCEPTANCE OF WATER AND/OR SEWER MAIN CONSTRUCTION WILL NOT BE GRANTED UNTIL AS-BUILT DRAWINGS HAVE BEEN RECEIVED BY CITY OF GAINESVILLE PUBLIC UTILITIES ENVIRONMENTAL COMPLIANCE AND PERMITTING OFFICE.
- MAINTAIN A MINIMUM 10 FEET HORIZONTAL DISTANCE BETWEEN WATER & SEWER LINE.
- MAINTAIN A MINIMUM 18 INCH VERTICAL DISTANCE BETWEEN WATER AND SEWER LINE.
- WHERE WATER AND SANITARY SEWER LINES CROSS, THE WATER MAIN SHALL BE 18 INCHES ABOVE THE SEWER. IF THE SEWER MUST BE ABOVE THE WATER MAIN, THE SEWER SHALL BE AT LEAST 18 INCHES ABOVE AND ENCASED IN CONCRETE A MINIMUM OF 10 FEET ON EACH SIDE OF THE WATER MAIN. JOINTS SHALL BE SPACED TO PROVIDE MAXIMUM DISTANCE FROM CROSSING.
- WHERE WATER OR SANITARY SEWER MAINS CROSS STORM DRAINS, MINIMUM 18 INCHES VERTICAL SEPARATION SHALL BE MAINTAINED.

P.I. 0018095 Hall - City of Gainesville DWR - Water Main

Summary Sheet

GDOT Code	Pay Item and Description	Additional Description	Unit	In-Kind Items	Orig Plan	Total Qty
670-1160	WATER MAIN, 16 IN(670-1160)	DIP	LF			1100
670-1080	WATER MAIN, 8 IN(670-1080)	DIP	LF			60
670-1060	WATER MAIN, 6 IN(670-1060)	DIP	LF			30
660-4055	STEEL CASING, 24 IN(660-4055)		LF			65
670-4530	CONCRETE THRUST COLLAR, 16 IN PIPE(670-4530)		EA			2
670-4510	CONCRETE THRUST COLLAR, 8 IN PIPE(670-4510)		EA			1
670-4000	FIRE HYDRANT(670-4000)	4.5-in	EA			3
660-1920	GATE VALVE, 6 IN(660-1920)		EA			4
660-1925	GATE VALVE, 8 IN(660-1925)		EA			2
660-1945	GATE VALVE, 16 IN(660-1945)		EA			2
005-6048	TAPPING SLEEVE & VALVE ASSEMBLY, -(660-3015)	16" X 16"	EA			2
660-3015	RELOCATE WATER METER, 3/4 IN(611-5588)		EA			3
670-9740	RELOCATE EXISTING WATER METER AND BACKFLOW PREVENTER(670-974	Commercial	EA			3
665-0050	SHORT SIDE SERVICE TIE OVER -(665-0050)	3/4-in	EA			4
665-0050	SHORT SIDE SERVICE TIE OVER -(665-0050)	1.5-in	EA			1
670-1600	CUT & PLUG EXISTING WATER MAIN(670-1600)	16-in	EA			1
670-1490	CUT AND CAP EXISTING WATER MAIN(670-1490)	16-in	EA			1

OTHER NOTES:

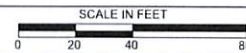
- THE COST OF THE FOLLOWING ITEMS SHALL BE INCIDENTAL TO THE COST OF THE WATER MAIN:
 - RESTRAINED JOINT PIPE INSIDE THE STEEL CASINGS.
 - DRY TAP CONNECTIONS TO EXISTING MAINS.
 - PROTECTIVE POLYETHYLENE WRAP TO BE INSTALLED WHERE WATER MAIN PARALLELS OR CROSSES EXISTING OR PROPOSED GAS MAINS.
 - THRUST BLOCKS AS CALLED FOR IN THRUST BLOCKING SCHEDULE.
 - CONCRETE ENCASEMENT OF WATER MAIN PER DETAIL.
- ALL WATER MAIN TO BE INSTALLED AT MINIMUM DEPTH OF 4' AND MAXIMUM DEPTH OF 8'. UNLESS SPECIAL PERMISSION GRANTED FROM CITY OF GAINESVILLE DWR.

PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
EXISTING LIMIT OF ACCESS
REQD LIMIT OF ACCESS
EXISTING LIMIT OF ACCESS & R/W
REQD LIMIT OF ACCESS & R/W
ORANGE BARRIER FENCE
ESA - ENV. SENSITIVE AREA



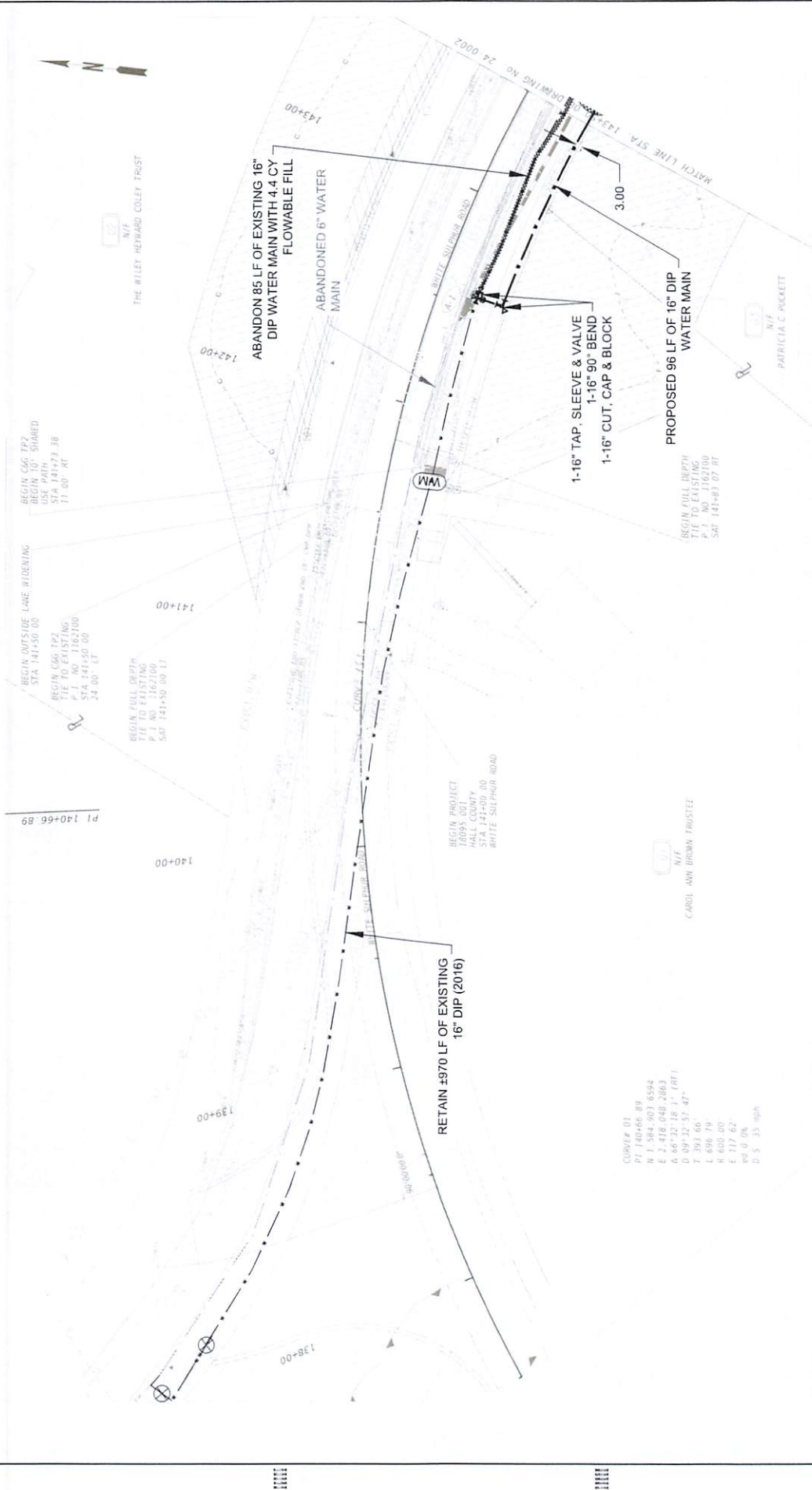
This item has been digitally signed and sealed by Tracy Rose, PE, on 06/20/2025. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

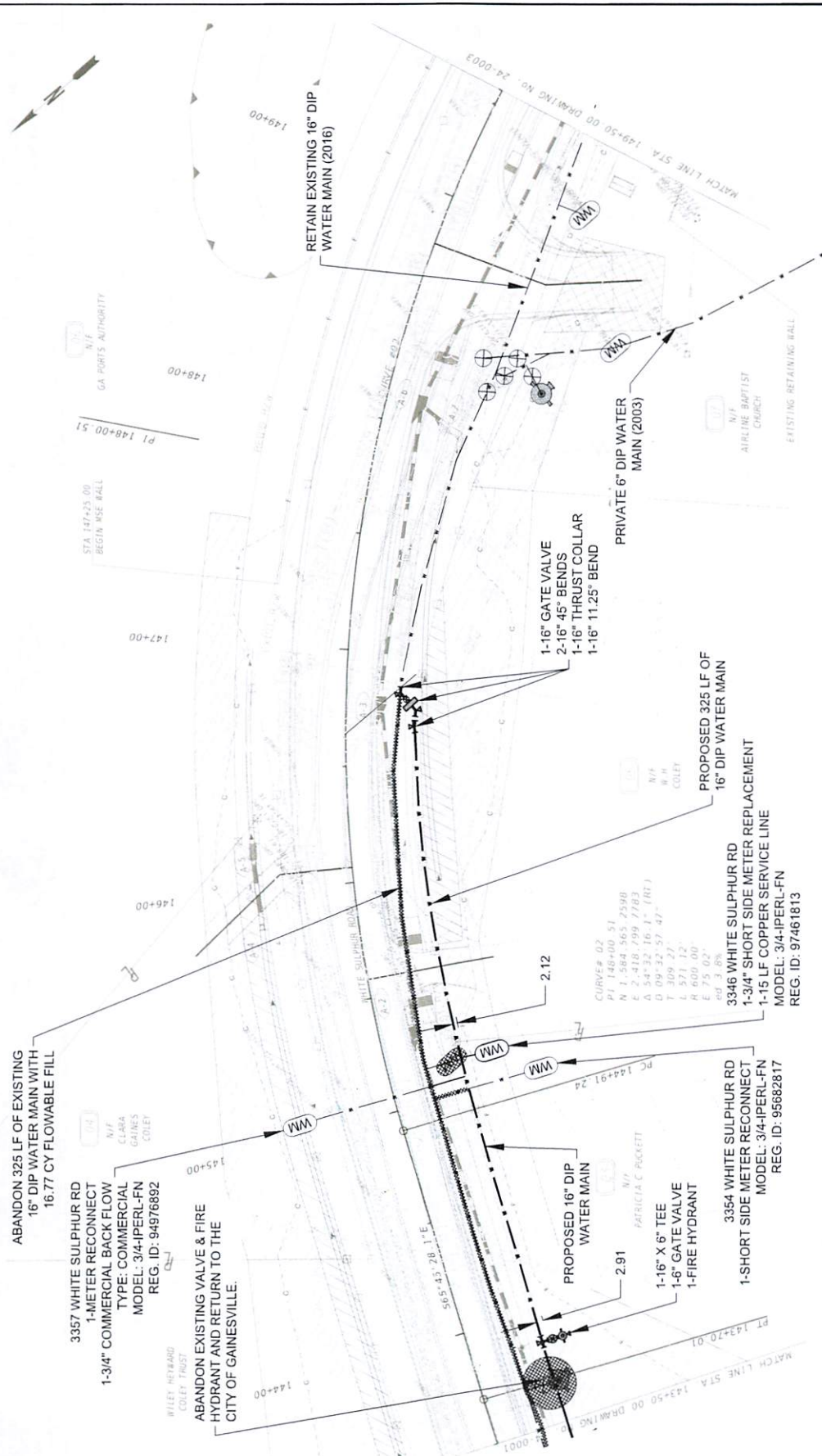


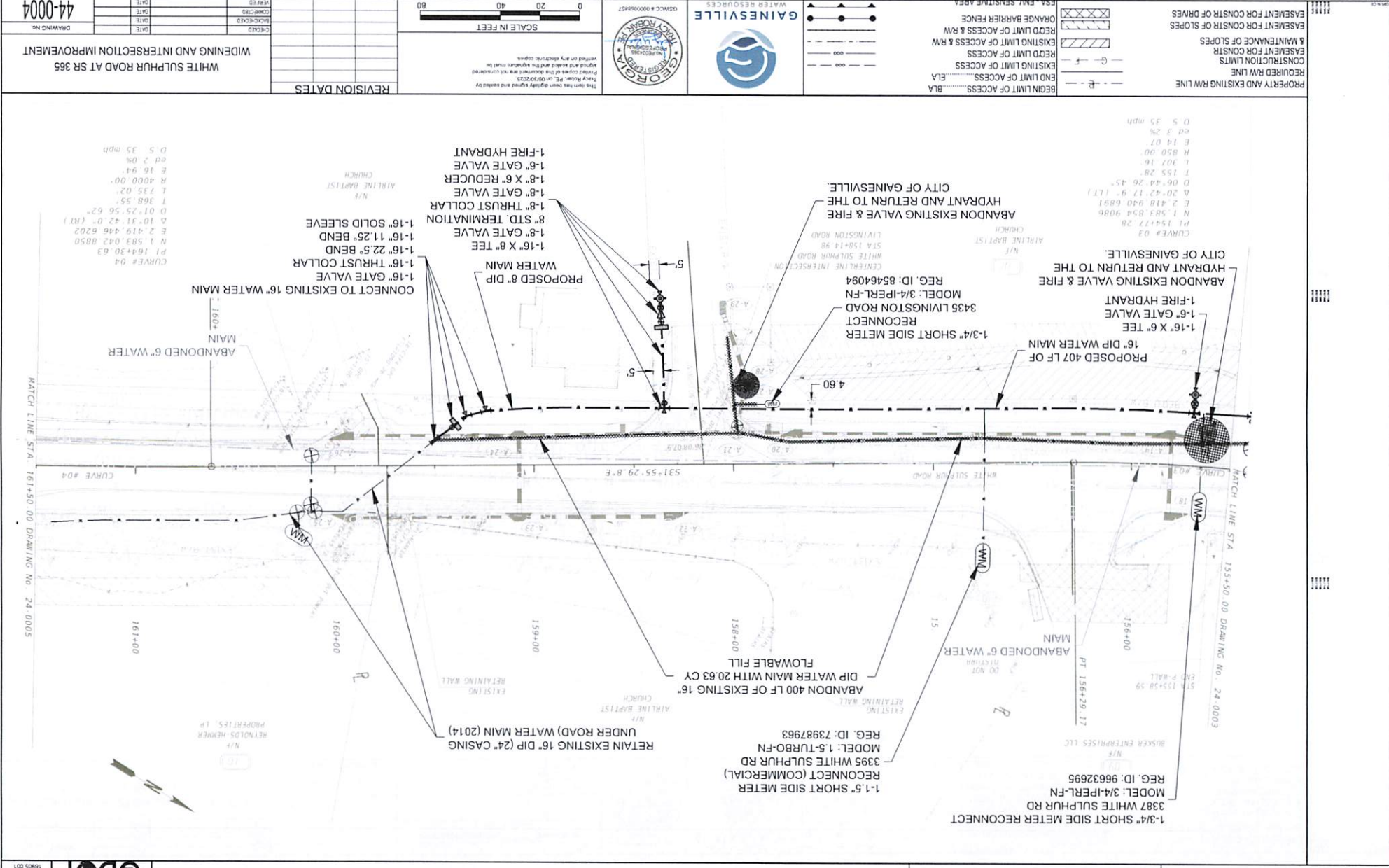
REVISION DATES

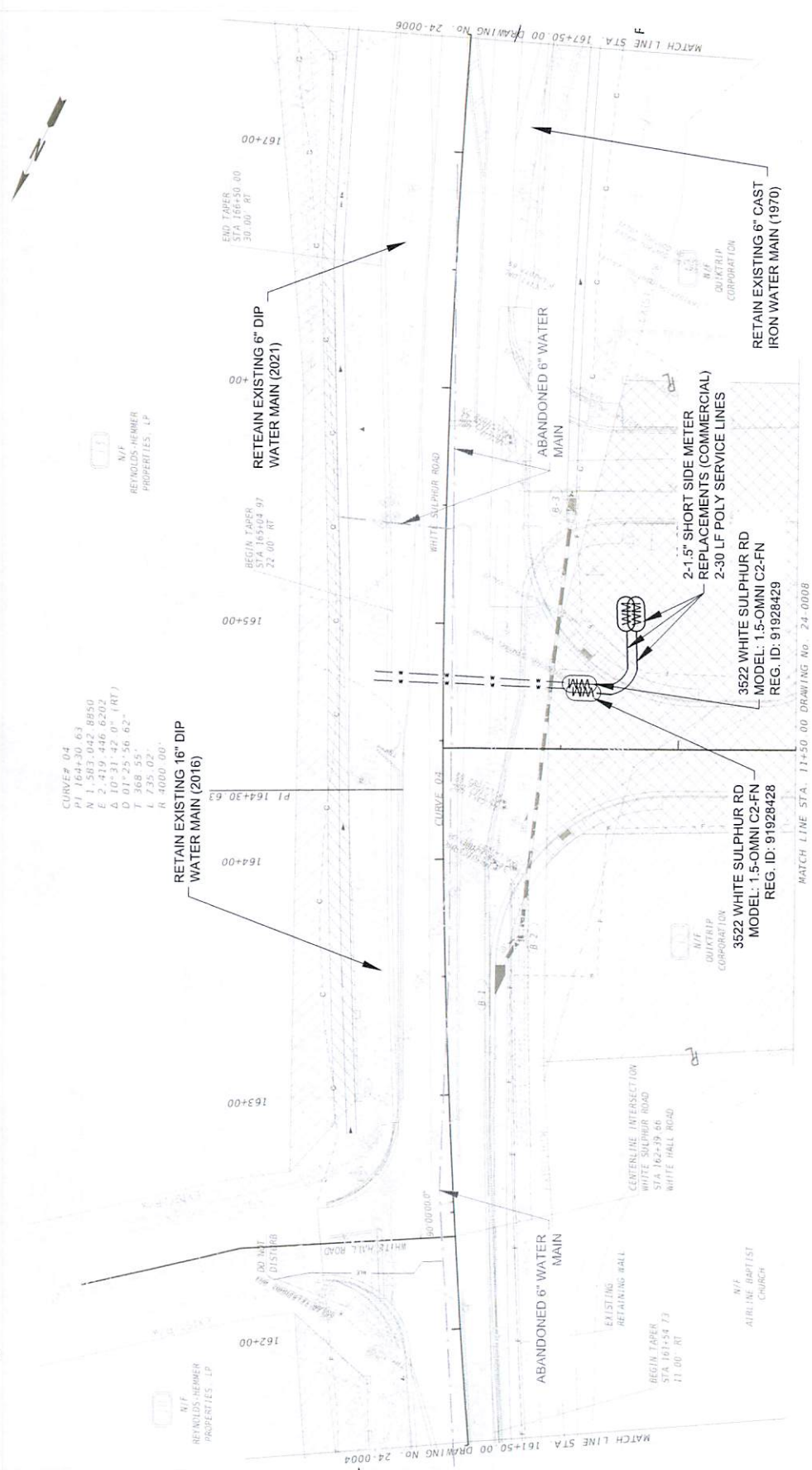
WHITE SULPHUR ROAD AT SR 365
WIDENING AND INTERSECTION IMPROVEMENT

CHECKED	DATE	DRAWING No.
BACKCHECKED	DATE	44-0000
CORRECTED	DATE	
VERIFIED	DATE	

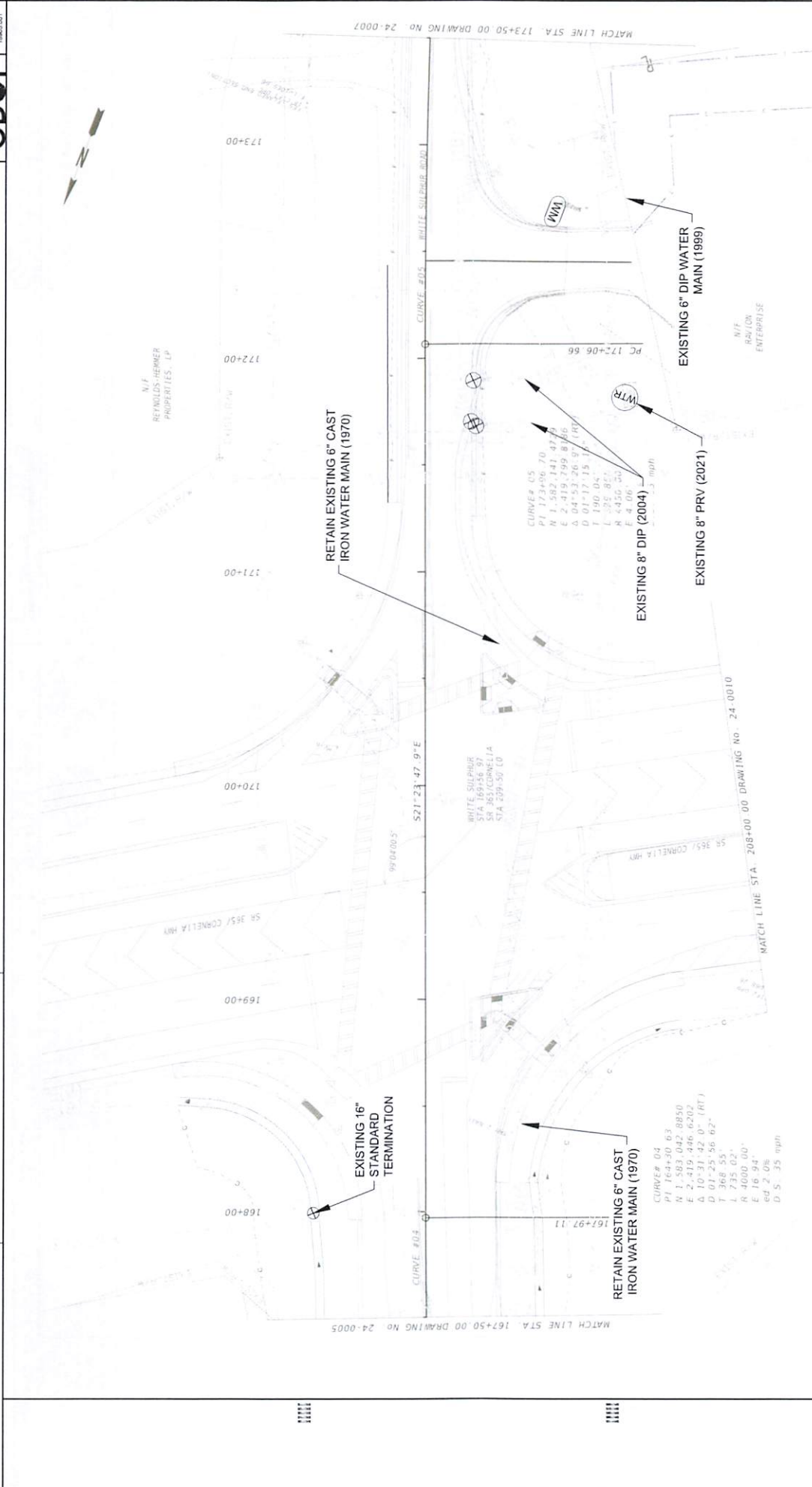
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PROPERTY AND EXISTING R/W LINE	--- - E - ---	BEGIN LIMIT OF ACCESS.....BLA	 GAINESVILLE WATER RESOURCES	 GEORGIA THE GREAT SEAL OF THE STATE OF GEORGIA 1776	This plan has been digitally signed and sealed by Tracy Rober, PE, and D-333-0225 The seal of the Professional Engineer is hereby signed and sealed and this signature must be verified on any electronic copies.	REVISION DATES <table><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table>																															WHITE SULPHUR ROAD AT SR 365 WIDENING AND INTERSECTION IMPROVEMENT	DRAWING No. 44-0005
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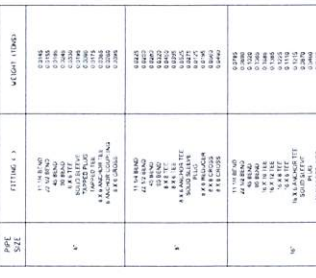
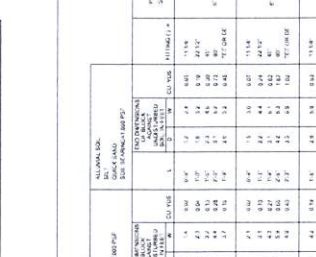
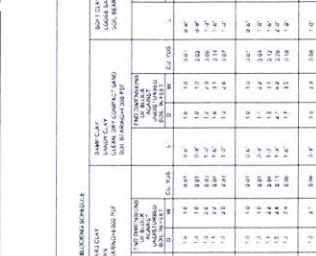
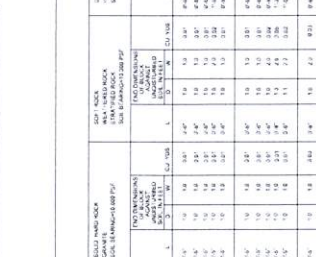
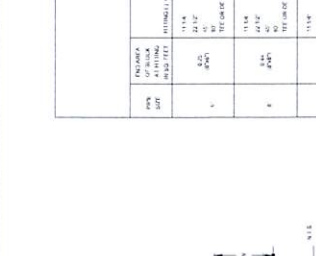
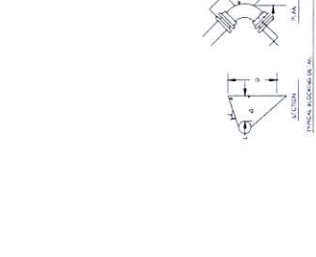
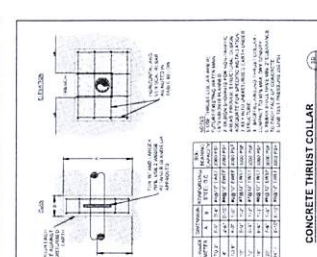
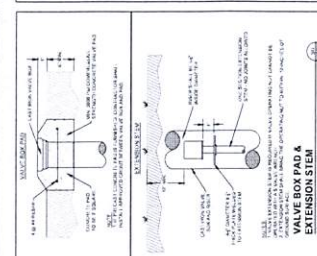
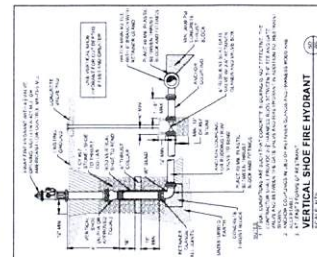
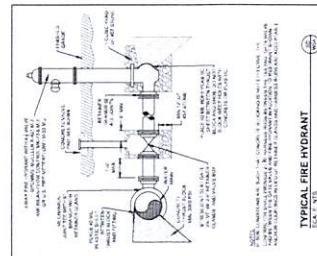
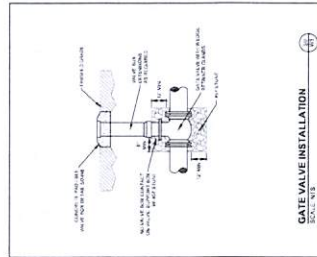
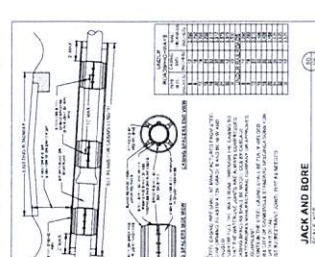
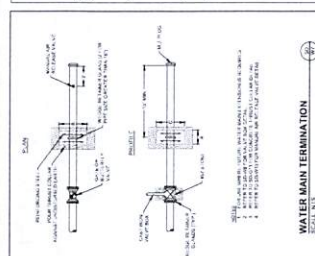
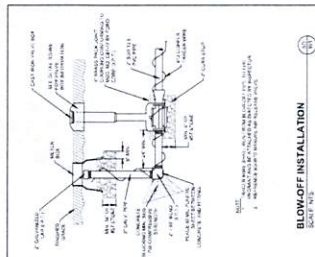
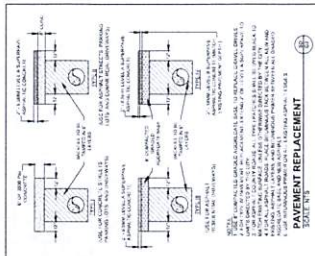
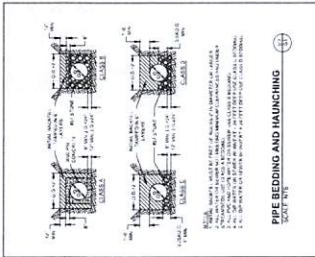
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Exhibit B – COG DWR Standard Specifications

Section 33 10 00 Water Mains and Accessories

PART 1 GENERAL

1.01 SCOPE

- A. This Section describes products to be incorporated into the water distribution system and requirements for the installation and use of these items. This Section also describes requirements for abandonment of existing water mains and salvaging of existing materials for the Owner. Furnish all products and perform all labor necessary to fulfill the requirements of these Specifications.
- B. General: Supply all products and perform all work in accordance with applicable American Society for Testing and Material (ASTM), American Water Works Association (AWWA), American National Standards Institute (ANSI), or other recognized standards. Latest revisions of all standards are applicable.

1.02 QUALIFICATIONS

If requested by the Owner, submit evidence that manufacturers have consistently produced products of satisfactory quality and performance for a period of at least two years.

1.03 SUBMITTALS

- A. Complete shop drawings and engineering data for all products shall be submitted to the Owner in accordance with the requirements of Section 01 33 23 of these Specifications.
- B. Experience Submittals: Connecting to existing water mains with tapping sleeves and valves is deemed to be specialty contractor work. If the Contractor elects to perform the work, the Contractor shall provide evidence as required by the General Conditions. A minimum of five continuous years of experience in performing connections is required. Evidence of this experience must be provided with the shop drawings for review by the Owner.

1.04 TRANSPORTATION AND HANDLING

- A. Unloading: Furnish equipment and facilities for unloading, handling, distributing and storing pipe, fittings, valves and accessories. Make equipment available at all times for use in unloading. Do not drop or dump materials. Any materials dropped or dumped will be subject to rejection without additional justification. Pipe handled on skids shall not be rolled or skidded against the pipe on the ground.
- B. Handling: Handle pipe, fittings, valves and accessories carefully to prevent shock or damage. Handle pipe by rolling on skids, forklift, or front-end loader. Do not use material damaged in handling. Slings, hooks or pipe tongs shall be padded and used in such a manner as to prevent damage to the exterior coatings or internal lining of the pipe.

1.05 OWNER FURNISHED MATERIALS

- A. Submit, with the construction progress schedule, a schedule for required deliveries of Owner-furnished materials.
- B. The Contractor shall coordinate material shipments with the Owner and the material suppliers.
- C. Materials furnished by the Owner will be delivered by truck. Valves and water meters to be furnished by the Owner shall be delivered to the Owner's storage yard or another site agreed upon by the Contractor and the Owner. This other site, if selected, is to be provided by the Contractor at no additional cost to the Owner.
- D. The Owner's storage yard is located on Bradford Street at Marler Street.

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- E. The Contractor shall maintain communication with the material suppliers, and the Owner as necessary, to keep informed as to scheduled shipment, and upon notice to the Contractor of the delivery of materials, the Contractor shall proceed without delay to unload such materials.
- F. Upon receipt of materials from the manufacturer, the Contractor shall make an inspection of such materials, checking and certifying the bill of lading, noting any discrepancies and obtaining a proper memorandum signed by the agent of the carrier for any shortage in the shipment, or for any damaged materials received. All bills of lading and any memorandum for shortage or damage of material in the shipment shall be promptly submitted to the Owner. The Contractor shall be responsible for distribution of all materials as required to complete the Work. Materials furnished to the Contractor shall be in the custody of the Contractor from the time of receipt by the Contractor of such materials from the carrier until final acceptance of the completed Work. The Contractor shall be responsible for any loss or damage to materials furnished by the Owner."

1.06 STORAGE AND PROTECTION

- A. Store all pipe which cannot be distributed along the route. Make arrangements for the use of suitable storage areas.
- B. Stored materials shall be kept safe from damage. The interior of all pipes, fittings and other appurtenances shall be kept free from dirt or foreign matter at all times. Valves and hydrants shall be drained and stored in a manner that will protect them from damage by freezing.
- C. Pipe shall not be stacked higher than the limits recommended by the manufacturer. The bottom tier shall be kept off the ground on timbers, rails or concrete. Pipe in tiers shall be alternated: bell, plain end; bell, plain end. At least two rows of timbers shall be placed between tiers and chocks, affixed to each other in order to prevent movement. The timbers shall be large enough to prevent contact between the pipes in adjacent tiers.
- D. Stored mechanical and push on joint gaskets shall be placed in a cool location out of direct sunlight. Gaskets shall not come in contact with petroleum products. Gaskets shall be used on a first in, first out basis.
- E. Mechanical joint bolts shall be handled and stored in such a manner that will ensure proper use with respect to types and sizes.

1.07 QUALITY ASSURANCE

The manufacturer shall provide written certification to the Owner that all products furnished comply with all applicable requirements of these Specifications.

PART 2 PRODUCTS

2.01 PIPING MATERIALS AND ACCESSORIES

- A. Ductile Iron Pipe (DIP)
 - 1. Ductile iron pipe shall conform to AWWA C151 and shall be Thickness Class 50 or Pressure Class 350 for pipe sizes 12-inch and less; and pressure class 250 for pipe sizes 16-inch and greater, unless otherwise specified or shown on the Drawings. Sizes will be as shown on the Drawings. All pipes, except specials, shall be furnished in nominal lengths of 18 to 20 feet. All ductile iron pipe shall be manufactured by American Cast Iron Pipe Company, U.S. Pipe, or McWane Ductile.

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2. Pipe Coatings:

- a. Pipe shall be cement lined in accordance with AWWA C104 and have an interior seal coat.
- b. Pipe shall be furnished with a bituminous outside coating in accordance with AWWA C151.
- c. The exterior of ductile iron pipe shall be coated with a layer of arc-sprayed zinc. The mass of the zinc applied shall be 200g/m² of pipe surface area. A finishing bituminous layer topcoat shall be applied to the zinc with a local minimum not less than 2 mils.

3. Fittings:

- a. Fittings shall be ductile iron and shall conform to AWWA C110 or AWWA C153 with a minimum rated working pressure of 250 psi.
- b. Fittings shall be cement lined in accordance with AWWA C104 and have an interior seal coat.
- c. Fittings shall be furnished with a bituminous outside coating. Fittings may be furnished with 6 mil min. nominal thickness fusion bonded epoxy coating conforming to ANSI/AWWA C550 and C116/A21.16 in lieu of bituminous coating.
- d. Provide retainer glands on all fittings.
- e. All fittings shall be manufactured by American Cast Iron Pipe Company, U.S. Pipe, Union Foundry, Sigma and Star Pipe.

4. Joints:

- a. Unless shown or specified otherwise, joints shall be push on or restrained joint type for pipe and standard mechanical or restrained joints for fittings. Push on and mechanical joints shall conform to AWWA C111. Restrained joints (RJ) shall be American "FLEX-RING" or U.S. Pipe "TR FLEX." No field welding of restrained joint pipe will be permitted.
- b. Flanged joints shall meet the requirements of ANSI B16.1 Class 125.

5. Provide the appropriate gaskets for mechanical and push-on joints. Restrained joint gaskets shall be Amarillo Fast-Grip gaskets as manufactured by American Cast Iron Pipe Company or approved equal.

6. Provide the necessary bolts for mechanical joint connections. Nuts shall be steel with American Standard Regular hexagonal dimensions, all as specified in ANSI B17.2. All bolts and all nuts shall be threaded in accordance with ANSI B1.1, Coarse Thread Series, Class 2A and 2B fit. Mechanical joint glands shall be ductile iron.

7. Acceptance will be on the basis of the Owner's inspection and the manufacturer's written certification that the pipe was manufactured and tested in accordance with the applicable standards.

B. Polyvinyl Chloride Pipe (PVC)

1. All PVC pipe shall have belled ends for push on type jointing and shall conform to ASTM D 2241. The pipe shall have a Standard Dimension Ratio (SDR) of 13.5 and shall be capable of withstanding a working pressure of 315 psi. Pipe shall be supplied in minimum lengths of 20 feet.

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2. All fittings shall be of the same material, strength, and dimension as the pipe. Special adapters shall be provided as recommended by the manufacturer to adapt the PVC pipe to mechanical jointing with galvanized steel, cast or ductile iron pipe, fittings, or valves.
3. A No. 12 AWG solid plastic coated copper wire shall also be placed along all PVC water mains.
4. Acceptance will be on the basis of the Owner's inspection and the manufacturer's written certification that the pipe was manufactured and tested in accordance with the applicable standards, including the National Sanitation Foundation. Additionally, each piece of pipe shall be stamped "NSF Approved".

C. Copper Pipe

1. Copper Pipe shall be ASTM B 88, Type K.
2. Copper tube and fittings manufacturers shall be certified to NSF/ANSI 61
3. All fittings shall be of the same material, strength, and dimension as the pipe. Special adapters shall be provided as recommended by the manufacturer to adapt the copper pipe to mechanical jointing with galvanized steel, cast or ductile iron pipe, fittings, or valves.
4. Fittings shall be brass with compression connection inlets and outlets, ANSI B16.26. Where required, adapters shall be brass ANSI B16.18. Unions shall be cast bronze. Joints shall be compression type. All fittings shall be of bronze construction with compression type connection

D. Galvanized Steel Pipe (GSP)

1. All pipe shall be Schedule 40. All galvanized pipe shall comply with the requirements of ASTM A 530.
2. Screw fittings shall be malleable iron except that nipples and couplings shall be of the same materials as the pipe. Fittings for butt welded joints shall comply with the requirements of ASTM A 234; flanges shall comply with the requirements of ASTM A 181.

2.02 VALVES

A. Gate Valves (GV)

1. Gate valves shall be resilient wedge type conforming to the requirements of AWWA C515 rated for 250 psi working pressure.
2. Valves shall be provided with two O ring stem seals with one O ring located above and one O ring below the stem collar. The area between the O rings shall be filled with lubricant to provide lubrication to the thrust collar bearing surfaces each time the valve is operated. At least one anti friction washer shall be utilized to further minimize operating torque. All seals between valve parts, such as body and bonnet, bonnet and bonnet cover, shall be flat gaskets or O rings.
3. The valve gate shall be made of ductile iron having a vulcanized, synthetic rubber coating, or a seat ring attached to the disc with retaining screws. Sliding of the rubber on the seating surfaces to compress the rubber will not be allowed. The design shall be such that compression set of the rubber shall not affect the ability of the valve to seal when pressure is applied to either side of the gate. The sealing mechanism shall provide zero leakage at the water working pressure when installed with the line flow in either direction.
4. All internal ferrous surfaces shall be coated with epoxy to a minimum thickness of 4 mils. The epoxy shall be non-toxic, impart no taste to the water and shall conform to AWWA C550, latest revision.

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5. Gate valves shall be manufactured by Mueller, M & H Valve, or American-Darling.
6. Provide retainer glands at all valves.
7. Provide #57 stone at all valves.

B. Check Valves (CV)

1. Check valves shall be hinged, swing-disc type with ductile iron body and bronze or bronze-fitted disc. Valves shall be designed for a rated working pressure of 150 psi and a 300-psi hydrostatic test for structural soundness. Valves shall be equipped with a 1/2-inch stopcock at the high point of the valve for bleeding air from the line.
2. Valves shall be gravity operated with flanged ends.
3. Valves shall be manufactured by Mueller or M & H Valve.

2.03 FIRE HYDRANTS (FH)

- A. All fire hydrants shall conform to the requirements of AWWA C502 for 150-psi working pressure. Hydrants shall be the compression type, closing with line pressure. The valve opening shall not be less than 4 1/2 inches.
- B. In the event of a traffic accident, the hydrant barrel shall break away from the standpipe at a point above grade and in a manner which will prevent damage to the barrel and stem, preclude opening of the valve, and permit rapid and inexpensive restoration without digging or cutting off the water.
- C. The means for attaching the barrel to the standpipe shall permit 360-degree rotation.
- D. Hydrants shall be fully bronze mounted with all working parts of bronze. Valve seat ring shall be bronze and shall screw into a bronze retainer.
- E. All working parts, including the seat ring shall be removable through the top without disturbing the barrel of the hydrant.
- F. The operating nut shall match those on the existing hydrants. The operating threads shall be totally enclosed in an operating chamber, separated from the hydrant barrel by a rubber O ring stem seal and lubricated by a grease or an oil reservoir. A stop nut shall be positioned in the top operating mechanism of the hydrant so that the valve stem cannot contact the bottom of the shoe when the hydrant is fully open.
- G. Hydrant shall be a non freezing design and be provided with a simple, positive, and automatic drain, which shall be fully closed whenever the main valve is opened.
- H. Hose and pumper connections shall be breech locked, pinned, or threaded and pinned to seal them into the hydrant barrel. Each hydrant shall have two 2 1/2 inch hose connections and one 4 1/2 inch pumper connection, all with National Standard threads and each equipped with cap and non kinking chain.
- I. Hydrants shall be furnished with a mechanical joint connection to the spigot of the 6 inch hydrant lead.
- J. Minimum depth of bury shall be 4.5 feet. Extension sections shall be furnished where necessary to bring hydrant to the proper elevation. Extension shall be installed in accordance with manufacturer's recommendations. The centerline of the 2-1/2 inches connections shall be a minimum of 18-inches above finished grade.

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- K. All outside surfaces of the barrel above grade shall be painted with enamel equal to Koppers Glamortex 501 in a silver color.
- L. Provide retainer glands at M.J. hydrant connections.
- M. Hydrants shall be traffic model and shall be Mueller A421 M.J, American-Darling MK-73-1 M.J, or M&H 129 M.J.
- N. Provide #57 stone at all fire hydrants.
- O. Hydrant tees shall be used on all fire hydrants, unless otherwise approved by Owner.

2.04 VALVE BOXES (VB) AND EXTENSION STEMS

- A. All valves shall be equipped with valve boxes. The valve boxes shall be cast iron two piece screw type with drop covers. Valve boxes shall have a 5.25 inch inside diameter. Valve box covers shall weigh a minimum of 13 pounds. The valve boxes shall be adjustable to 6 inches up or down from the nominal required cover over the pipe. Valve boxes shall be of sufficient length that bottom flange of the lower belled portion of the box is below the valve operating nut. Ductile or cast iron extensions shall be provided as necessary. Covers shall have "WATER VALVE" or "WATER" cast into them. Valve boxes shall be manufactured in the United States.
- B. All valves shall be furnished with extension stems, where valve operating nut exceeds 5-feet below ground surface, bring the extension operating nut to within 12-inches of ground surface. Connection to the valve shall be with a wrench nut coupling and a setscrew to secure the coupling to the valve's operating nut. The coupling and square wrench nut shall be welded to the extension stem. Extension stems shall be equal to Mueller A 26441 or M & H Valve Style 3801.
- C. Provide #57 stone at all valve boxes.

2.05 VALVE MARKERS (VM)

Provide a concrete valve marker for each valve installed. Valve markers shall be 4 feet long concrete posts. They shall have a "V" stamped on one side with a brass disc cast into the marker immediately below the "V". The brass disc shall be stamped with the distance between the valve and the valve marker. The marker shall be installed such that the disc faces the valve and with 12 to 18-inches extending above the ground surface. Markers are not required for fire hydrant lead valves.

2.06 TAPPING SLEEVES AND VALVES (TS&V)

Tapping sleeves shall be cast or ductile iron of the split sleeve, mechanical joint type. The Contractor shall be responsible for determining the outside diameter of the pipe to be connected to prior to ordering the sleeve. Valves shall be gate valves furnished in accordance with the specifications shown above, with flanged connection to the tapping sleeve and mechanical joint connection to the branch pipe. The tapping sleeve and valve shall be supplied by the valve manufacturer. Tapping valves shall be Mueller T-2360 sizes 4"-24", M & H Style 3751-NRS sizes 4"-12" or Style 751 sizes 14"-24", American-Darling No. 865 sizes 4"-12" or 565 sizes 14"-24", or U.S. Pipe Metroseal valve Fig. No. 5860 sizes 3"-24". Sleeves shall be Mueller Model H-615, M & H Style 1174-01, American-Darling M. J. 4"-48", Tyler Model No. 5-149-DI sizes 6"-12", or U.S. Pipe T-9 M. J. sizes 4"-24".

2.07 CURB STOPS

Curb stops for 2 inch blow off assemblies or other main line locations shall have inside IPT on both ends. They shall be Mueller Catalog No. B 20283, Ford Catalog No. B11 777, or A.Y. McDonald 6101.

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Provide valve boxes, specified elsewhere in these Specifications, with all main line curb stops. Provide #57 stone at all curb stops.

2.08 RETAINER GLANDS

- A. Retainer glands shall be ductile iron wedge-type and shall be manufactured in the United States. All retainer glands on the Project shall be the product of a single manufacturer. Wedge-type retainer glands shall be MEGALUG, Series 1100 as manufactured by EBAA Iron, Inc., Uni-flange Series 1400 as manufactured by Ford Meter Box Co., Inc., Stargrip Series 3000 by Star Pipe Products or Sigma One-Lok by Sigma Corp.
- B. Retainer glands shall be provided at all mechanical joints, including fittings, valves, hydrants and other locations as shown on the Drawings.

2.09 HYDRANT TEES

Hydrant tees shall be equal to ACIPCO A10180 or U.S. Pipe U 592. Hydrant tees shall be used on all fire hydrants, unless otherwise approved by Owner.

2.10 ANCHOR COUPLINGS

Lengths and sizes shall be as shown on the Drawings. Anchor couplings shall be equal to ACIPCO A 10895 or U.S. Pipe U 591.

2.11 COUPLINGS

Couplings for connecting polyvinyl chloride (PVC) pipe to existing water mains shall be bolted style steel or iron body couplings. Couplings shall be straight or transition configuration as appropriate for connecting to existing water mains. Couplings shall be equal to Ford FC2 or FC3, Rockwell Series 441 or Dresser Style 38.

2.12 CONCRETE

Concrete shall have a compressive strength of not less than 3000 psi, with not less than 5.5 bags of cement per cubic yard and a slump between 3 and 5 inches. For job mixed concrete, submit the concrete mix design for approval by the Owner. Ready mixed concrete shall be mixed and transported in accordance with ASTM C 94. Reinforcing steel shall conform to the requirements of ASTM A 615, Grade 60.

2.13 V BIO POLYWRAP

- A. Polyethylene Encasement shall be V Bio as approved by DIPRA. This will be required in all locations where ductile iron pipe crosses steel gas mains, where shown on the drawings, or where directed by the Engineer.
- B. All ductile iron pipe that cross steel gas mains shall be "poly-wrapped" for a distance of 20 feet either side of the gas main. All areas where the steel gas main is parallel with the ductile iron pipe and comes within 5 feet of the water main shall be brought to the attention of the City of Gainesville inspector. These areas may warrant the need to be wrapped as directed by Gainesville staff.

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PART 3 EXECUTION

3.01 EXISTING UTILITIES AND OBSTRUCTIONS

- A. The Drawings indicate utilities or obstructions that are known to exist according to the best information available to the Owner. The Contractor shall call the Utilities Protection Center (UPC) (325 5000 or 1 800 282 7411) as required by Georgia law (Code Section 25 9 1 through 25 9 13) and all utilities, agencies or departments that own and/or operate utilities in the vicinity of the construction work site at least 72 hours (three business days) prior to construction to verify the location of the existing utilities.
- B. Existing Utility Location: The following steps shall be exercised to avoid interruption of existing utility service.
1. Provide the required notice to the utility owners and allow them to locate their facilities according to Georgia law. Field utility locations are valid for only 10 days after original notice. The Contractor shall ensure, at the time of any excavation, that a valid utility location exists at the point of excavation.
 2. Expose the facility, for a distance of at least 200 feet in advance of pipeline construction, to verify its true location and grade. Repair, or have repaired, any damage to utilities resulting from locating or exposing their true location at no additional cost to the Owner.
 3. Avoid utility damage and interruption by protection with means or methods recommended by the utility owner.
 4. Maintain a log identifying when phone calls were made, who was called, area for which utility relocation was requested and work order number issued, if any. The Contractor shall provide the Owner an updated copy of the log bi weekly, or more frequently if required.
- C. Conflict with Existing Utilities
1. Horizontal Conflict: Horizontal conflict shall be defined as when the actual horizontal separation between a utility, main, or service and the proposed water main does not permit safe installation of the water main by the use of sheeting, shoring, tying back, supporting, or temporarily suspending service of the parallel or crossing facility. The Contractor may change the proposed alignment of the water main to avoid horizontal conflicts if the new alignment remains within the available right of way or easement, complies with regulatory agency requirements and after a written request to and subsequent approval by the Owner. Where such relocation of the water main is denied by the Owner, the Contractor shall arrange to have the utility, main, or service relocated.
 2. Vertical Conflict: Vertical conflict shall be defined as when the actual vertical separation between a utility, main, or service and the proposed water main does not permit the crossing without immediate or potential future damage to the utility, main, service, or the water main. The Contractor may change the proposed grade of the water main to avoid vertical conflicts if the changed grade maintains adequate cover and complies with regulatory agencies requirements after written request to and subsequent approval by the Owner. Where such relocation of the water main is denied by the Owner, the Contractor shall arrange to have the utility, main, or service relocated.
- D. Electronic Locator: Have available at all times an electronic pipe locator and a magnetic locator, in good working order, to aid in locating existing pipe lines or other obstructions.

E. Water and Sewer Separation:

1. Water mains should maintain a minimum 10 foot edge to edge separation from sewer lines, whether gravity or pressure. If the main cannot be installed in the prescribed easement or right of way and provide the 10 foot separation, the separation may be reduced, provided the bottom of the water main is a minimum of 18 inches above the top of the sewer. Should neither of these two separation criteria be possible, the water main shall be installed below the sewer with a minimum vertical separation of 18 inches.
2. No water main shall pass through, or come in contact with, any part of a sanitary sewer manhole.

3.02 CONSTRUCTION ALONG HIGHWAYS, STREETS AND ROADWAYS

- A. Install pipe lines and appurtenances along highways, streets and roadways in accordance with the applicable regulations of, and permits issued by, the Department of Transportation, Hall County and the City of Gainesville with reference to construction operations, safety, traffic control, road maintenance and repair.

B. Traffic Control

1. The Contractor shall provide, erect and maintain all necessary barricades, suitable and sufficient lights and other traffic control devices; provide qualified flagmen where necessary to direct traffic; take all necessary precautions for the protection of the work and the safety of the public. Flagmen shall be certified by a Georgia DOT approved training program.
2. Construction traffic control devices and their installation shall be in accordance with the current Manual On Uniform Traffic Control Devices for Streets and Highways.
3. Placement and removal of construction traffic control devices shall be coordinated with the Department of Transportation, Hall County and the City of Gainesville a minimum of 48 hours in advance of the activity.
4. Placement of construction traffic control devices shall be scheduled ahead of associated construction activities. Construction time in street right of way shall be conducted to minimize the length of time traffic is disrupted. Construction traffic control devices shall be removed immediately following their useful purpose. Traffic control devices used intermittently, such as "Flagmen Ahead", shall be removed and replaced when needed.
5. Existing traffic control devices within the construction work zone shall be protected from damage. Traffic control devices requiring temporary relocation shall be located as near as possible to their original vertical and horizontal locations. Original locations shall be measured from reference points and recorded in a log prior to relocation. Temporary locations shall provide the same visibility to affected traffic as the original location. Relocated traffic control devices shall be reinstalled in their original locations as soon as practical following construction.
6. Construction traffic control devices shall be maintained in good repair and shall be clean and visible to affected traffic for daytime and nighttime operation. Traffic control devices affected by the construction work zone shall be inspected daily.
7. Construction warning signs shall be black legend on an orange background. Regulatory signs shall be black legend on a white background. Construction sign panels shall meet the minimum reflective requirements of the Department of Transportation, Hall County and the City of Gainesville. Sign panels shall be of durable materials capable of maintaining their color, reflective character and legibility during the period of construction.

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8. Channelization devices shall be positioned preceding an obstruction at a taper length as required by the current Manual On Uniform Traffic Control Devices for Streets and Highways, as appropriate for the speed limit at that location. Channelization devices shall be patrolled to insure that they are maintained in the proper position throughout their period of use.
- C. Construction Operations
1. Perform all work along highways, streets and roadways to minimize interference with traffic.
 2. Stripping: Where the pipe line is laid along road right of way, strip and stockpile all sod, topsoil and other material suitable for right of way restoration.
 3. Trenching, Laying and Backfilling: Do not open the trench any further ahead of pipe laying operations than is necessary. Backfill and remove excess material immediately behind laying operations. Complete excavation and backfill for any portion of the trench in the same day.
 4. Shaping: Reshape damaged slopes, side ditches, and ditch lines immediately after completing backfilling operations. Replace topsoil, sod and any other materials removed from shoulders.
- D. Excavated Materials: Do not place excavated material along highways, streets and roadways in a manner, which obstructs traffic. Sweep all scattered excavated material off of the pavement in a timely manner.
- E. Drainage Structures: Keep all side ditches, culverts, cross drains, and other drainage structures clear of excavated material. Care shall be taken to provide positive drainage to avoid ponding or concentration of runoff.
- F. Landscaping Features: Landscaping features shall include, but are not necessarily limited to: fences; property corners; cultivated trees and shrubbery; manmade improvements; subdivision and other signs within the right of way and easement. The Contractor shall take extreme care in moving landscape features and promptly re establishing these features.
- G. Maintaining Highways, Streets, Roadways and Driveways
1. Maintain streets, highways, roadways and driveways in suitable condition for movement of traffic until completion and final acceptance of the Work.
 2. During the time period between pavement removal and completing permanent pavement replacement, maintain highways, streets and roadways by the use of steel running plates. Running plate edges shall have asphalt placed around their periphery to minimize vehicular impact. The backfill above the pipe shall be compacted as specified elsewhere up to the existing pavement surface to provide support for the steel running plates.
 3. Furnish a road grader or front end loader for maintaining highways, streets, and roadways. The grader or front end loader shall be available at all times.
 4. Immediately repair all driveways that are cut or damaged. Maintain them in a suitable condition for use until completion and final acceptance of the Work.

3.03 PIPE DISTRIBUTION

- A. Pipe shall be distributed and placed in such a manner that will not interfere with traffic.
- B. No pipe shall be strung further along the route than 1,000 feet beyond the area in which the Contractor is actually working without written permission from the Owner. The Owner reserves the right to reduce this distance to a maximum distance of 200 feet in residential and commercial areas based on the effects of the distribution to the adjacent property owners.

- C. No street or roadway may be closed for unloading of pipe without first obtaining permission from the proper authorities. The Contractor shall furnish and maintain proper warning signs and obstruction lights for the protection of traffic along highways, streets and roadways upon which pipe is distributed.
- D. No distributed pipe shall be placed inside drainage ditches.
- E. Distributed pipe shall be placed as far as possible from the roadway pavement, but no closer than five feet from the roadway pavement, as measured edge to edge.

3.04 LOCATION AND GRADE

- A. The Drawings show the alignment of the water main and the location of valves, hydrants and other appurtenances.
- B. Construction Staking
 - 1. The base lines for locating the principal components of the work are shown on the Drawings. Base lines shall be defined as the line to which the location of the water main is referenced, i.e., edge of pavement, road centerline, property line, right of way or survey line. The Contractor shall be responsible for performing all survey work required for constructing the water main, including the establishment of base lines and any detail surveys needed for construction. This work shall include the staking out of permanent and temporary easements to insure that the Contractor is not deviating from the designated easements.
 - 2. The level of detail of survey required shall be that which the correct location of the water main can be established for construction and verified by the Owner. Where the location of components of the water main, e.g. tunnels and fittings, are not dimensioned, the establishment on the location of these components shall be based upon scaling these locations from the Drawings with relation to readily identifiable land marks, e.g., survey reference points, power poles, manholes, etc.
- C. Reference Points
 - 1. The Contractor shall take all precautions necessary, which includes, but is not necessarily limited to, installing reference points, in order to protect and preserve the centerline or baseline established by the Owner.
 - 2. Reference points shall be placed, at or no more than three feet, from the outside of the construction easement or right of way. The location of the reference points shall be recorded in a log with a copy provided to the Owner for use, prior to verifying reference point locations. Distances between reference points and the manhole centerlines shall be accurately measured to 0.01 foot.
 - 3. The Contractor shall give the Owner reasonable notice that reference points are set. The reference point locations must be verified by the Owner prior to commencing clearing and grubbing operations.
- D. After the Contractor locates and marks the water main centerline or baseline, the Contractor shall perform clearing and grubbing.
- E. Construction shall begin at a connection location and proceed without interruption. Multiple construction sites shall not be permitted without written authorization from the Owner for each site.

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- F. The Contractor shall be responsible for any damage done to reference points, base lines, center lines and temporary bench marks, and shall be responsible for the cost of re establishment of reference points, base lines, center lines and temporary bench marks as a result of the operations.
- G. Survey Cash Allowance: The survey cash allowance is solely for the use of the Owner for verification of the Contractor's reference points, center lines and work performed. The presence of this cash allowance in no way relieves the Contractor of the responsibility of installing reference points, center lines, temporary bench marks or verifying that the work has been performed accurately.

3.05 LAYING AND JOINTING PIPE AND ACCESSORIES

- A. Lay all pipe and fittings to accurately conform to the lines and grades established by the Owner.
- B. Pipe Installation
 - 1. Proper implements, tools and facilities shall be provided for the safe performance of the Work. All pipe, fittings, valves and hydrants shall be lowered carefully into the trench by means of slings, ropes or other suitable tools or equipment in such a manner as to prevent damage to water main materials and protective coatings and linings. Under no circumstances shall water main materials be dropped or dumped into the trench.
 - 2. All pipe, fittings, valves, hydrants and other appurtenances shall be examined carefully for damage and other defects immediately before installation. Defective materials shall be marked and held for inspection by the Owner, who may prescribe corrective repairs or reject the materials.
 - 3. All lumps, blisters and excess coating shall be removed from the socket and plain ends of each pipe, and the outside of the plain end and the inside of the bell shall be wiped clean and dry and free from dirt, sand, grit or any foreign materials before the pipe is laid. No pipe containing dirt shall be laid.
 - 4. Foreign material shall be prevented from entering the pipe while it is being placed in the trench. No debris, tools, clothing or other materials shall be placed in the pipe at any time.
 - 5. As each length of pipe is placed in the trench, the joint shall be assembled and the pipe brought to correct line and grade. The pipe shall be secured in place with approved backfill material.
 - 6. It is not mandatory to lay pipe with the bells facing the direction in which work is progressing.
 - 7. Applying pressure to the top of the pipe, such as with a backhoe bucket, to lower the pipe to the proper elevation or grade, shall not be permitted.
 - 8. A continuous or properly spliced No. 10 American Wire Gauge (AWG) solid steel core plastic coated tracer wire with a 45-mil jacket and a minimum 30-volt rating. Locator wire shall have a minimum of 2,032 lbs. break load and be blue colored for water line installation. Care shall be taken during backfilling to prevent damaging or cutting of the locator wire. All splices shall be made by using copper wire "U" bolt assemblies and then wrapping with electrical tape. Wire shall be wrapped around pipe such that at least four "wraps" are produced per length of pipe. In lieu of "wrapping", the tracer wire may be strung along the top of pipe provided it is taped to the pipe every 5 feet to insure proper positioning during backfilling.
- C. Alignment and Gradient
 - 1. Lay pipe straight in alignment and gradient or follow true curves as nearly as practicable. Do not deflect any joint more than the maximum deflection recommended by the manufacturer.

2. Maintain a transit, level and accessories on the job to lay out angles and ensure that deflection allowances are not exceeded.
- D. Expediting of Work: Excavate, lay the pipe, and backfill as closely together as possible. Do not leave unjointed pipe in the trench overnight. Backfill and compact the trench as soon as possible after laying and jointing is completed. Cover the exposed end of the installed pipe each day at the close of work and at all other times when work is not in progress. If necessary to backfill over the end of an uncompleted pipe or accessory, close the end with a suitable plug, either push on, mechanical joint, restrained joint or as approved by the Owner.
- E. Joint Assembly
1. Push on, mechanical and flange type joints shall be assembled in accordance with the manufacturer's recommendations.
 2. The Contractor shall inspect each pipe joint within 200 feet on either side of main line valves to insure 100 percent seating of the pipe spigot, except as noted otherwise.
- F. Cutting Pipe: Cut ductile iron pipe using an abrasive wheel saw. Cut PVC pipe using a suitable saw; remove all burrs and smooth the end before jointing. The Contractor shall cut the pipe and bevel the end, as necessary, to provide the correct length of pipe necessary for installing the fittings, valves, accessories and closure pieces in the correct location.
- G. Valve and Fitting Installation
1. Prior to installation, valves shall be inspected for direction of opening, number of turns to open, freedom of operation, tightness of pressure containing bolting and test plugs, cleanliness of valve ports and especially seating surfaces, handling damage and cracks. Defective valves shall be corrected or held for inspection by the Owner. Valves shall be closed before being installed.
 2. Valves, fittings, plugs and caps shall be set and joined to the pipe in the manner specified in this Section for cleaning, laying and joining pipe, except that 12 inch and larger valves shall be provided with special support, such as treated timbers, crushed stone, concrete pads or a sufficiently tamped trench bottom so that the pipe will not be required to support the weight of the valve. Valves shall be installed in the closed position
 3. A valve box shall be provided on each underground valve. They shall be carefully set, centered exactly over the operating nut and truly plumbed. The valve box shall not transmit shock or stress to the valve. The bottom flange of the lower belled portion of the box shall be placed below the valve operating nut. This flange shall be set on #57 stone, so arranged that the weight of the valve box and superimposed loads will bear on the base and not on the valve or pipe. Extension stems shall be installed where depth of bury places the operating nut in excess of 12 inches beneath finished grade so as to set the top of the operating nut 12 inches below finished grade. The valve box cover shall be flush with the surface of the finished area or such other level as directed by the Owner.
 4. A concrete pad shall be required around each valve box, the top flush with the cover as detailed on the Drawings. Precast valve pads will be allowed where approved by the Owner. Precast pads shall not be used on slopes or in ditches. If precast pads are used, the space between the valve box and the opening in the pad shall be filled with grout.
 5. In no case shall valves be used to bring misaligned pipe into alignment during installation. Pipe shall be supported in such a manner as to prevent stress on the valve.

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6. A valve marker shall be provided for each underground valve. Markers shall be installed with the top protruding 18 inches above the finished grade. A marker shall be located within 20 feet of all valves. One marker may be used to reference the location of more than one valve, provided the valves are within 20 feet of the marker. A valve marker is not required for valves on fire hydrant stems. No marker shall be installed within three feet of direct line of operation of a fire hydrant.
7. Where main line valves are shown on the Drawings adjacent to fire hydrant tees or intersection tees, install the valves no more than four feet from the tee unless shown or specified otherwise.
8. Non-restrained and push-on joints shall not be installed within 15-feet of restrained joints at valves or fittings, unless shown otherwise on the Drawings or approved by the Owner.

I. Hydrant Installation

1. Prior to installation, inspect all hydrants for direction of opening, nozzle threading, operating nut and cap nut dimensions, tightness of pressure containing bolting, cleanliness of inlet elbow, handling damage and cracks. Defective hydrants shall be corrected or held for inspection by the Owner.
2. All hydrants shall stand plumb and shall have their nozzles parallel with or at right angles to the roadway, with pumper nozzle facing the roadway, unless otherwise directed by the Owner.
3. Hydrants shall be set to the established grade, with the centerline of the lowest nozzle at least 12 inches above the ground or as directed by the Owner.
4. Hydrants shall be set with #57 stone placed around hydrant shoe.
5. Hydrants shall be connected to the main as shown on the Drawings.
6. Hydrants shall be located as shown on the Drawings or as directed by the Owner.

3.06 CONNECTIONS TO WATER MAINS

- A. Make connections to existing pipe lines as shown on the Drawings.
- B. Location: Before laying pipe, locate the points of connection to existing water mains and uncover as necessary for the Owner to confirm the nature of the connection to be made.
- C. Interruption of Services: Make connections to existing water mains only when system operations permit. The Owner shall open and close existing valves unless prior approval is given.
- D. Tapping Sleeves
 1. Prior to attaching the sleeve, the pipe shall be thoroughly cleaned, utilizing a brush and rag, as required.
 2. Before performing field machine cut, the water-tightness of the sleeve assembly shall be pressure tested. The interior of the assembly shall be filled with water. An air compressor shall be attached, which will induce a test pressure as specified in this Section. No leakage shall be permitted for a period of five minutes.
 3. After attaching the sleeve to an existing main, but prior to making the tap, the interior of the assembly shall be disinfected. All surfaces to be exposed to potable water shall be swabbed or sprayed with a one- percent hypochlorite solution.
- E. Connections Using Solid Sleeves: Where connections are shown on the Drawings using solid sleeves, the Contractor shall furnish materials and labor necessary to make the connection to the existing pipe line.

- F. **Connections Using Couplings:** Where connections are shown on the Drawings using couplings, the Contractor shall furnish materials and labor necessary to make the connection to the existing pipe line, including all necessary cutting, plugging and backfill.

3.07 THRUST RESTRAINT

- A. Provide restraint at all points where hydraulic thrust may develop.
- B. **Retainer Glands:** Provide retainer glands at all fire hydrants, fittings, valves and elsewhere as shown on the Drawings. Retainer glands shall be installed in accordance with the manufacturer's recommendations, particularly, the required torque of the setscrews. The Contractor shall furnish a torque wrench to verify the torque on all setscrews, which do not have inherent torque indicators.
- C. **Harnessing**
1. Provide harness rods only where specifically shown on the Drawings or directed by the Owner.
 2. Harness rods shall be manufactured in accordance with ASTM A 36 and shall have an allowable tensile stress of no less than 22,000 psi. Harness rods shall be hot dip galvanized or field coated with bitumastic before backfilling.
 3. Where possible, harness rods shall be installed through the mechanical joint bolt holes. Where it is not possible, provide 90-degree bend eye bolts.
 4. Eye bolts shall be of the same diameter as specified in AWWA C111 for that pipe size. The eye shall be welded closed. Where eye bolts are used in conjunction with harness rods, an appropriate size washer shall be utilized with a nut on each end of the harness rod. Eye bolts shall be of the same material and coating as the harness rods.
- D. **Anchor Couplings**
1. Anchor couplings may be used in lieu of retainer glands or harness rods on fire hydrant leads and in addition to concrete blocking.
 2. Install anchor couplings in accordance with the manufacturer's recommendations.
- E. **Hydrants:** Hydrants shall be attached to the water main as shown on the Drawings.
- F. **Thrust Collars:** Collars shall be constructed as shown on the Drawings. Concrete and reinforcing steel shall meet the requirements as specified in this Section.
- G. **Concrete Blocking**
1. Provide concrete blocking for all bends, tees, valves, and other points where thrust may develop, except where other exclusive means of thrust restraint are specifically shown on the Drawings.
 2. Concrete shall be as specified in this Section.
 3. Form and pour concrete blocking at fittings as shown on the Drawings and as directed by the Owner. Pour blocking against undisturbed earth. Increase dimensions when required by over excavation.

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3.08 INSPECTION AND TESTING

A. Pressure and Leakage Test

1. All sections of the water main subject to internal pressure shall be pressure tested in accordance with AWWA C600. A section of main will be considered ready for testing after completion of all thrust restraint and backfilling.
2. Each segment of water main between main valves shall be tested individually.
3. Test Preparation
 - a. For water mains less than 24 inches in diameter, flush sections thoroughly at flow velocities, greater than 2.5 feet per second, adequate to remove debris from pipe and valve seats. For water mains 24 inches in diameter and larger, the main shall be carefully swept clean, and mopped if directed by the Owner. Filling and flushing of new lines shall be performed so as to not affect service to existing customers.
 - b. Partially operate valves and hydrants to clean out seats.
 - c. Provide temporary blocking, bulkheads, flanges and plugs as necessary, to assure all new pipe, valves and appurtenances will be pressure tested.
 - d. Before applying test pressure, air shall be completely expelled from the pipeline and all appurtenances. Insert corporation cocks at high points to expel air as main is filled with water as necessary to supplement automatic air valves.
 - e. Fill pipeline slowly with water. Provide a suitable pump with an accurate water meter to pump the line to the specified pressure.
 - f. The differential pressure across a valve or hydrant shall equal the maximum possible, but not exceed the rated working pressure. Where necessary, provide temporary backpressure to meet the differential pressure restrictions.
 - g. Valves shall not be operated in either the opening or closing direction at differential pressures above the rated pressure.
4. Test Pressure: Test the pipeline at 250 psi measured at the lowest point for at least two hours. Maintain the test pressure within 5 psi of the specified test pressure for the test duration. Should the pressure drop more than 5 psi at any time during the test period, the pressure shall be restored to the specified test pressure. Provide an accurate pressure gage with graduation not greater than 5 psi.
5. Leakage
 - a. Leakage shall be defined as the sum of the quantity of water that must be pumped into the test section, to maintain pressure within 5 psi of the specified test pressure for the test duration plus water required to return line to test pressure at the end of the test. Leakage shall be the total cumulative amount measured on a water meter.
 - b. The Owner assumes no responsibility for leakage occurring through existing valves.
6. Test Results: No test section shall be accepted if the leakage exceeds the limits determined by the following formula:

$$L = \frac{SD(P)^{1/2}}{133,200}$$

Where:

- L = Allowable leakage, in gallons per hour
- S = Length of pipe tested, in feet
- D = Nominal diameter of the pipe, in inches
- P = Average test pressure during the leakage test, in pounds per square inch (gauge)

As determined under Section 4 of AWWA C600.

If the water main section being tested contains lengths of various pipe diameters, the allowable leakage shall be the sum of the computed leakage for each diameter. The leakage test shall be repeated until the test section is accepted. All visible leaks shall be repaired regardless of leakage test results.

7. Completion: After a pipeline section has been accepted, relieve test pressure. Record type, size and location of all outlets on record drawings.

3.09 DISINFECTING PIPELINE

- A. After successfully pressure testing each pipeline section, disinfect in accordance with AWWA C651 for the continuous feed method and these Specifications.
- B. Specialty Contractor: Disinfection shall be performed by an approved specialty contractor. Before disinfection is performed, the Contractor shall submit a written procedure for approval before being permitted to proceed with the disinfection. This plan shall also include the steps to be taken for the neutralization of the chlorinated water.
- C. Chlorination
 1. Apply chlorine solution into the new water main. Retain chlorinated water for 24 hours minimum.
 2. After 24 hours, the Contractor shall assist the Owner in obtaining samples at every outlet. Samples of water shall contain at least 25 milligrams per liter free chlorine. Re chlorinate if required results are not obtained on all samples.
 3. Provide the Owner a minimum 24 hours notice to take samples. Weekends and recognized holidays shall not be included as part of the 24 hour notice.
- D. Disposal of Chlorinated Water: Reduce chlorine residual of disinfection water to less than one milligram per liter if discharged directly to a body of water or to less than two milligrams per liter if discharged onto the ground prior to disposal. Treat water with sulfur dioxide or other reducing chemicals to neutralize chlorine residual. Flush all lines until residual is equal to existing system.
- E. Bacteriological Testing: After final flushing and before the main is placed into service, the Contractor shall assist the Owner in collecting samples from the line to have tested for bacteriological quality. Testing shall be performed by the Owner at a laboratory certified by the State of Georgia. Re chlorinate lines until the required results are obtained.

3.10 PROTECTION AND RESTORATION OF WORK AREA

- A. General: Return all items and all areas disturbed, directly or indirectly by work under these Specifications, to their original condition or better, as quickly as possible after work is started.
 1. The Contractor shall plan, coordinate, and prosecute the work such that disruption to personal property and business is held to a practical minimum.

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2. All construction areas abutting lawns and yards of residential or commercial property shall be restored promptly. Backfilling of underground facilities, ditches, and disturbed areas shall be accomplished on a daily basis as work is completed. Finishing, dressing, and grassing shall be accomplished immediately thereafter, as a continuous operation within each area being constructed and with emphasis placed on completing each individual yard or business frontage. Care shall be taken to provide positive drainage to avoid ponding or concentration of runoff.
 3. Handwork, including raking and smoothing, shall be required to ensure that the removal of roots, sticks, rocks, and other debris is removed in order to provide a neat and pleasing appearance.
 4. The Department of Transportation's engineer shall be authorized to stop all work by the Contractor when restoration and cleanup are unsatisfactory and to require appropriate remedial measures.
- B. Man Made Improvements: Protect, or remove and replace with the Owner's approval, all fences, walkways, mail boxes, pipe lines, drain culverts, power and telephone lines and cables, property pins and other improvements that may be encountered in the Work.
- C. Cultivated Growth: Do not disturb cultivated trees or shrubbery unless approved by the Owner. Any such trees or shrubbery, which must be removed, shall be heeled in and replanted under the direction of an experienced nurseryman.
- D. Cutting of Trees: Do not cut trees for the performance of the work except as absolutely necessary. Protect trees that remain in the vicinity of the work from damage from equipment. Do not store spoil from excavation against the trunks. Remove excavated material stored over the root system of trees within 30 days to allow proper natural watering of the root system. Repair any damaged tree over 3 inches in diameter, not to be removed, under the direction of an experienced nurseryman. All trees and brush that require removal shall be promptly and completely removed from the work area and disposed of by the Contractor. No stumps, wood piles, or trash piles will be permitted on the work site.
- E. Disposal of Rubbish: Dispose of all materials cleared and grubbed during the construction of the Project in accordance with the applicable codes and rules of the appropriate county, state and federal regulatory agencies.

3.11 ABANDONING EXISTING WATER MAINS

- A. General: Abandon in place all existing water main segments indicated on the Drawings to be abandoned. Perform abandonment after the new water main has been placed in service and all water main services have been changed over to the new main. Salvage for the Owner, existing fire hydrants, valve boxes, valve markers, and other materials indicated on the Drawings or located on water mains abandoned.
- B. Capping and Plugging: Disconnect by sawing or cutting and removing a segment of existing pipe where cutting and capping or plugging is shown on the Drawings or directed by the Owner. Provide a watertight pipe cap or plug and concrete blocking for restraint to seal off existing mains indicated to remain in service. Seal ends of existing mains to be abandoned with a pipe cap or plug or with a masonry plug and minimum 6 inch cover of concrete on all sides around the end of the pipe. The Contractor shall be responsible for uncovering and verifying the size and material of the existing main to be capped or plugged.

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- C. Salvaging Materials: Salvage existing fire hydrants, valve boxes, valve markers and other materials as indicated on the Drawings and deliver salvaged items in good condition to the Owner's storage yard located on Bradford Street. Coordinate delivery and placement of salvaged materials in advance with the Owner.
- D. Blow Off Piping: Remove existing blow off piping, located on segments of water mains to be abandoned, to a minimum of two feet below finished grade. Seal the end of remaining piping as specified above in paragraph B. Blow off piping removed becomes the property of the Contractor.
- E. Pavement Removal and Replacement: Perform any necessary pavement removal and replacement in accordance with the details on the Drawings and Section 02 41 13.13 of these Specifications.

END OF SECTION